ipinfusion™

VirNOS
Product Overview

VirNOS is a feature-rich, high-performance network OS for Virtual Network Functions which provides VNF solutions for vCPE, vPE, security, WAN optimization and other requirements. VirNOS provides a virtual networking solution for Network Functions Virtualization to help network operators reduce their CapEx and OpEx costs, accelerate time-to-market for new services, increase agility, and deploy new network services faster.

VirNOS supports many use cases such as distributed or cloud based vCPE, vPE for carriers' network, vRouter for data center network, and OpenFlow support for SDN deployments, etc.

Based on the widely-deployed and time-tested ZebOS® network platform, VirNOS is designed to meet the requirements for today's networks by supporting many networking functionalities such as MPLS L3VPN, MPLS L2VPN, IPv4, IPv6, OSPF, ISIS, BGP, LDP, RSVP-TE, QoS, Multicast, OpenFlow and network security.

With VirNOS, customers have a high performance software solution to leverage standard COTS servers with generic CPUs. Network operators can build and deploy diverse services quickly at reduced cost and stitch together multiple service offerings faster.

Network Functions Virtualization: VirNOS replaces dedicated network hardware with virtualization software running on commodity servers. It utilizes standard IT virtualization technologies that run on a range of industry standard, high-volume service, switch and storage hardware to virtualize network functions. VirNOS consolidates and delivers the networking components needed to support a virtualized network infrastructure. With VirNOS, network operators can select equipment options from multiple vendors instead of buying expensive and restrictive solutions, reducing their CapEx and OpEx costs.

Features and Benefits

- **Supports OpenFlow:** VirNOS supports Flow Switching via the OpenFlow which can allow customers to program the Data Plane with flexibility by using a general OpenFlow controller. VirNOS also supports the OpenFlow Controller function and can work along with the existing rout- ing/signaling protocols. Based on the results of the routing/signaling pro- tocols, the OpenFlow controller can convert the routing/signaling informa- tion into the flow messages and then program the devices for IPv4, IPv6 and MPLS via OpenFlow protocol.

- **Supports network interface confi rations:** VirNOS supports several interface configuration to achieve the performance and flexible service chaining with PCI Passthrough, SR-IOV, OpenVswitch Bridging, Intel DPDK vSW as well is ODP compliant.

- **Supports MPLS, MPLS L3VPN, and MPLS L2VPN:** VirNOS supports LDP, RSVP-TE and BGP labeled unicast and segment routing. VirNOS provides support for MPLS-based L3 service for both IPv4 and IPv6 applications for both control plane and data plane.

- **Provides network connectivity support:** VirNOS provides full network connectivity support of IPv4 and IPv6 dynamic routing protocols for unicast/ multicast (BGP, OSPF, ISIS, PIM).

- **Leverages ZebOS-XP platform:** VirNOS leverages the mature code base of IP Infusion's industry proven ZebOS-XP platform which is used by more than 300 vendors around the world. This assures interoperability with many different existing pieces of network equipment and takes advantage of IP Infusion's industry experience and expertise in routing and switching.

System Level Features

Layer 2

802.1Q VLANs / Trunking support
802.3x Flow control (depend on NIC)
802.3ad Link aggregation group support
Static ARP
Traffic Mirroring

MPLS Support

MPLS Architecture Support
LDP, RSVP support
RSVP Traffic Engineering support
MPLS L2VPN Pseudowire setup and maintenance using LDP
MPLS L3VPN for IPv4/IPv6
Differentiated Services over MPLS

Tunnelling Support

GRE Support on IPv4,IPv6 on Global and VRF space
L2TP/IPSec Support on IPv4, IPv6 on Global and VRF space
NTP
Syslog
SNMP v1/2/3
Industry standard CLI
Ansible Integration
Sflow support

Layer 3

Static IPv4/IPv6 route support, Routed VLAN support
OSPFv2/v3, ISIS (v4/v6), MP-BGP, RIPv2
Multi-path ECMP
VRF (IPv4) support
BFD for IPv4, IPv6, Protocol support for OSPF, BGP, in Global and VRF space
IGMP v2/v3
IGMP Snooping, querier, proxy report suppression
MLD
MSDP
PIM-SM, PIM –SSM, PIM-DM (IPv4/IPv6)
VRRP on Global & VRF space for IPv4 and IPv6
NAT/NAPT
As support for IPv4/IPv6 multicast support for global and VRF space

SDN Functionality

VxLAN Support
NvGRE Support
Flow switching on ODP/Intel DPDK
OpenFlow agent based on OpenFlow 1.3
OpenFlow controller collaborating with routing/signaling protocols based on OpenFlow 1.3
Integration with Openstack, Virtual router plugin API for Openstack
SDK for supporting a forwarding module defined by user
NAT/NAPT

Management, Security and QoS Features

Access control list
RADIUS and TACACS+ support
Role based access control
Modular QOS
Flexible flow classification and action rule-set
Telnet Server/Client
SSH Server/Client
FTP Server/Client
SCP Server/Client
DHCP Server/Client
DNS Proxy/Client
IPSec support for IPv4, IPv6 in global and VRF mode
Stateful Firewall support for IPV4,IPv6 in global and VRF mode

About IP Infusion

IP Infusion, the leader in disaggregated networking solutions, delivers the best network OS for white box and network virtualization. IP Infusion offers network operating systems for both physical and virtual networks to carriers, service providers and enterprises to achieve the disaggregated networking model. With the OcNOS™ and VirNOS™ network operating systems, IP Infusion offers a single, unified physical and virtual software solution to deploy new services quickly at reduced cost and with greater flexibility. Over 300 customers worldwide, including major networking equipment manufacturers, use IP Infusion's respected ZebOS platform to build networks to address the evolving needs of cloud, carrier and mobile networking. IP Infusion is headquartered in Santa Clara, Calif., and is a wholly owned and independently operated subsidiary of ACCESS CO., LTD. Additional information can be found at http://www.ipinfusion.com.

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